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beliefs and air of missionary zeal. Yet this is a disappointing study not only for the skeptical but also for the most optimistic of archaeologists. Were it actually possible to apply "microarchaeology" (and that remains to be seen), the results would probably be so banal and boring as to make it the driest dust that blows.

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EMERGING PATHOGENS. ARCHAEOLOGY, ECOLOGY AND EVOLUTION OF INFECTIOUS DISEASE, edited by C. Greenblatt and M. Spigelman. Pp. xiv + 250, figs. 41, tables 14. Oxford University Press, Oxford 2003. \$64.50. ISBN 0-19-850901-4 (paper).

The emergence, and re-emergence, of infectious disease confronts humans in both developing and developed countries today with factors such as poverty, lack of (and access to) health-care facilities, drug resistance, and movement of people looking for better lives featuring highly in the increases in infectious disease. These facts in mind make this book timely. As the preface illustrates, the focus is on the study of ancient pathogenic DNA to diagnose disease; this type of research was lacking until recently. While this author does not believe that aDNA analysis can answer all our questions about infections in the past, it has made considerable advances in some areas in our understanding of the evolution of disease.

I would also challenge the opinion that DNA analyses confirm diagnoses made morphologically. A positive DNA result cannot be directly correlated with bone changes being observed; it may make the diagnosis more likely but does not prove a direct association. Does this mean that biomolecular archaeologists will only accept a disease diagnosis if they have a positive result using aDNA analysis? One would hope not! In any case, the cost and destructive nature of aDNA analysis prohibits whole population studies, which would be necessary to generate real rates of disease prevalence. aDNA analysis will continue to complement morphological studies where appropriate, perhaps when a number of differential diagnoses are being considered. It is imperative, however, to emphasize that contamination of human tissue samples with foreign DNA (during burial, excavation, processing of human material, and curation in museums), the strong possibility that DNA will not survive to be analyzed, and the fact that authentication of results is not always done in an independent laboratory are all problems that still face aDNA analysis. Furthermore, readers of this type of research should, therefore, be cautious in accepting all published results. As part of a recent doctoral thesis (Chilvers, "Ancient DNA and Palaeopathology: Malaria in Ancient Greece" [Ph.D. diss., University of Manchester, 2004]),

a survey of the potential authenticity of published pathogenic DNA papers found that in 39 papers published on DNA and disease diagnosis between 1994 and 2003, 32 did not discuss whether results had been independently replicated, 2 said they had not, and the remaining 5 said that they had been replicated. This aside, this book makes for interesting reading.

The book is divided into three parts (evolution and ecology, different aspects of human disease, and the state of the art). Greenblatt provides an overview of how infection originated and evolved into a disease, emphasizing quite rightly that the "context of disease . . . can hardly be ignored." Martin considers the earth's history, disease, and primate evolution. While this overview chapter is useful, one could challenge the acceptance of "syphilis in a Pleistocene bear" and the statement that there is little evidence of pre-Columbian syphilis outside of the New World. A conference in France (Dutour et al., *The Origin of Syphilis in Europe. Before or after 1493?* [Toulon 1993]) proved there was much more evidence for pre-Columbian syphilis in Europe than has been believed, and additional evidence has more recently emerged (e.g., Mitchell, "Pre-Columbian Treponemal Disease from 14th Century AD Safed, Israel," *American Journal of Physical Anthropology* 121 [2003] 117–24). The discussions on the evolution of tuberculosis would also have benefited from a consideration of the work by Brosch et al. ("A New Evolutionary Scenario for the *Mycobacterium tuberculosis* Complex," *Proceedings of the National Academy of Sciences, USA* 99 [2002] 3684–9) concerning the lack of evidence for *Mycobacterium tuberculosis* evolving from *M. bovis*. Gortz and Michel look at the potential for new pathogens occurring in protozoa. Protozoa are hosts and/or vectors and they feed on microorganisms, especially bacteria, a good example being Legionnaires' disease. Cano considers the potential of using fossilized evidence from amber as an indicator of evolutionary change in species, and Black charts the evolution of arthropod disease vectors (e.g., in the case of malaria, where the mosquito carries the parasite to infect human populations).

Part 2 starts with a chapter by Baum and Bar-Gal on the diversity of human pathogens and coevolution of humans with their pathogens. This chapter is fascinating, particularly for its discussion of the human HIV1 and HIV2 infections and their close relationship to simian immunodeficiency viruses in chimpanzees and the sooty mangabey monkey, respectively. Unfortunately, DNA analysis is often presented as the answer to all our questions about infections. I would also argue that the introduction of large-scale medical treatments is probably not the most significant factor affecting the development of human disease. It may be one of the factors, but poverty is very much involved with the occurrence of disease. However, I would agree that understanding the evolution of pathogens is key to dealing with the future, and DNA analysis could help trace the evolution of organisms, as has already been done by Zink et al. ("Molecular Characterisation of *Mycobacterium Tuberculosis* Complex in Ancient Egyptian Mummies," *International Journal of Osteoarchaeology* 14 [2004] 404–13).

Cohen and Crane-Kramer discuss the subject of palaeoepidemiology. This is a very useful review of the

subject, particularly with respect to primate and pre-human zoonoses (diseases in animals that are transmitted to humans, like tuberculosis). I would, however, challenge their optimism for DNA analysis—virtually all attempts to isolate the DNA of the treponemal organisms have been unsuccessful to date. Comments about the earliest cases of leprosy being datable to the Medieval period can also be countered with evidence from Egypt dated to the second century A.D. and from Britain in the fourth century (see Roberts et al., eds., *The Past and Present of Leprosy* [Oxford 2002]). Ubelaker emphasizes the need to improve methods of palaeopathological analysis and interpretation of the data, including the provision of training. His research on Ecuadorian skeletal remains serves to remind us of the need to take a population- and biocultural-based approach.

Rothschild's paper concentrates on infections although there are no clear aims stated. Reactive arthritis, treponemal disease, and tuberculosis are considered. There are some odd statements (e.g., linear enamel hypoplasias reduce the likelihood of tooth survival, and [see above] there is no evidence of pre-Columbian syphilis in England). He suggests, based on his diagnostic criteria, that between one-fifth and one-third of skeletons from English medieval sites he studied suffered yaws. However, I am unclear how this conclusion was reached when periosteal reaction on the bones of the skeleton can be attributed to many causative factors; there is no mention of the facial changes of yaws or characteristic joint damage. I believe it is highly unlikely that this is a case for yaws, since yaws is a tropical disease and Britain has never had a tropical environment (unless all these people were immigrants). Finally, with respect to my research on the cause of rib periostitis, there is no hard scientific data that unequivocally could use rib lesions to support a diagnosis of tuberculosis (see Roberts and Buikstra, *The Bioarchaeology of Tuberculosis* [Gainesville 2003]).

Ewald's paper concludes this section and considers the evolution of virulence and the scope of infectious causation. It is concise and well argued, and is a valuable contribution to our understanding of virulence of infections in the past.

Part 3 covers some of the latest biomolecular research on ancient disease, including an important paper by Matheson and Brian that attempts to develop a molecular taphonomic framework. It is unfortunate that this type of research was not undertaken in the early years of ancient DNA analysis, so that we could have been aware of when and where ancient biomolecules survive before so much time and money were wasted on samples that provided no results. Herrmann and Hummel provide a short overview of DNA analysis of ancient disease with a useful table of studies, although again there is no clear aim stated in the introduction to the paper.

Dutour et al. consider mortality rates and the occurrence of plague and tuberculosis in 16th- to 18th-century A.D. French skeletal samples, and feel that DNA analysis holds great promise for the future. Nataro et al. look at the (rare) study of the archaeology of enteric infections. Spigelman and Donoghue present data from research on Hungarian mummies and found fascinating results. For example, three tuberculous victims, a mother and her two

daughters, had different strains of *M. tuberculosis*, showing that the molecular characteristics of past strains of organisms can be studied, and even compared with modern strains, to understand their evolution. Finally in this section, we have a summary of the now famous research on the 1918 "Spanish" influenza virus from Taubenberger and Reid. Of course, viral infections can only mainly be identified in the past by using biomolecular techniques since these infections do not directly affect the skeleton.

The book is well written and is accessible to a wide range of readers. It will be of interest to anthropologists, archaeologists, palaeopathologists, medical historians, biomolecular scientists, and medical scientists, including undergraduate and graduate students. At times statements of fact made in some papers are not supported by references where they should be, and I was unhappy to still see the use of "man" and "mankind" in one paper where "humans" and "humankind" would have been more acceptable. However, this does not detract from the book, which is otherwise an enjoyable read. Nevertheless, while it must be regarded as innovative in its approach, we must not run before we can walk: there is yet no need to replace basic palaeopathological analyses with DNA analysis.

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THE AGE OF BRONZE: THE STORY OF THE TROJAN WAR. Vol. 1, A THOUSAND SHIPS, by *Eric Shanower*. Pp. 224, numerous figs. Hungry Tiger Press, San Diego 2001. \$29.95. ISBN 1-58240-212-4 (cloth).

THE AGE OF BRONZE: THE STORY OF THE TROJAN WAR. Vol. 2, SACRIFICE, by *Eric Shanower*. Pp. 224, numerous figs. Hungry Tiger Press, San Diego 2004. \$29.95. ISBN 1-58240-360-0 (cloth).

These highly detailed black-and-white comic books are the first two installments of the seven-volume series that retells the Trojan War epic cycle. The hardback editions recount many of the stories in the *Kypria*, or the events prior to the *Iliad*. Bibliographies, genealogies, and glossaries complement both issues.

The first volume involves the Judgment of Paris and the gathering of the Achaean kings. In summary, Paris is a petulant rube that Priam sends to return Hesione from Salamis in Cyprus. Paris changes plans instead for Sparta, where he abducts Helen. Without explicitly including the gods, the premise for the war is set. Shanower then intertwines several stories before arriving at Aulis. The narrative turns to Mount Pelion, where Thetis takes Achilles from Cheiron to be raised as a girl by Lykomedes of Skyros, where he later rapes the king's daughter Deidamia. Meanwhile, Menelaus approaches Agamemnon to remind him of the suitors' pledge at his marriage to